

No Preview
Available

Total No. of Question : [4]

Registration No. :

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Programme Name : Bachelor of Computer Science Engineering
Regular T.Y.B.Tech. Sem. VI ESE May / June 2023
VI SEMESTER (2020 BATCH)
201CSL316-Compiler Design

Duration : 2 Hours

Marks : 50

Instructions :

(Q1) All questions are compulsory. [20.0]

(a) Explain language processing activities. [6.0]

CO :- 1

Blooms Taxonomy :- Understand

(b) What is Macro? Explain Macro call, Macro Expansion, Nested Macro Call and give example. [7.0]

CO :- 1

Blooms Taxonomy :- Understand

(c) Explain Role of Lexical Analyzer with a Diagram. List the issues in lexical Analysis. [7.0]

CO :- 2

Blooms Taxonomy :- Remember

(Q2) Question a is compulsory. Solve anyone out of b and c. [10.0]

(a) Design a recursive descent parser for the following grammar. [4.0]

S--> aAd

A--> a | da

CO :- 3

Blooms Taxonomy :- Apply

(b) Construct the FIRST and FOLLOW sets for the following Grammar [6.0]

$S \rightarrow aBDh$

$B \rightarrow cC$

$C \rightarrow bC / \epsilon$

$D \rightarrow EF$

$E \rightarrow g / \epsilon$

$F \rightarrow f / \epsilon$

CO :- 3

Blooms Taxonomy :- Apply

OR [b / c]

(c) What is LR Parsing? Draw the block diagram for model of LR parser and list its features. [6.0]

CO :- 3

Blooms Taxonomy :- Apply

(Q3) **Question a is compulsory. Solve anyone out of b and c.** [10.0]

(a) Define SDD. What are synthesized attributes and inherited attributes? Give an example. [5.0]

CO :- 4

Blooms Taxonomy :- Apply

(b) Construct [5.0]
a) syntax tree and
b) DAG
for the Expression $a+a*(b-c)+(b-c)*d$

CO :- 4

Blooms Taxonomy :- Apply

OR [b / c]

(c) Write and explain syntax-directed definition to produce a syntax tree for an assignment statement. [5.0]

CO :- 4

Blooms Taxonomy :- Apply

(Q4) **Attempt any two out of three questions.** [10.0]

(a) What are basic blocks? Write an algorithm to partition the three-address code into basic blocks. [5.0]

CO :- 4

Blooms Taxonomy :- Apply

(b) Write and explain the steps in code generation algorithm.

[5.0]

CO :- 4

Blooms Taxonomy :- Apply

(c) Optimize the following codes. Mention the code optimization technique used in each.

[5.0]

Code 1:

S1 = 4 x i

S2 = a[S1]

S3 = 4 x j

S4 = 4 x i

S5 = n

S6 = b[S4] + S5

Code2:

for (int j = 0 ; j < n ; j ++)

{

x = y + z ;

a[j] = 6 x j;

}

Code 3 :

i = 0 ;

if (i == 1)

{

a = x + 5 ;

}

Code 4 :

x=y+10*3

Code 5:

int x,y,z;

x=x+1;

y=y+0;

z=x+y;

z=z*1;

CO :- 5

Blooms Taxonomy :- Apply
